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Ohio's Mineral Display.

R. M. HASELTINE.

READ AT LOGAN MEETING.

Ohio's Mineral Display at the coming Centennial to be held in Columbus during September and October, of the present year, is a subject that should receive the heartiest support of the members of the Institute and the people of our State. Of what it should consist and in what manner it should be arranged for exhibition are two questions that are now receiving a great deal of thought by those who are taking part in the matter at the present time. On the first proposition, it is but proper that the vast deposit of coal underlying the twenty-nine eastern counties, which comprise one-third of the area of the State, should receive especial attention, so that these great resources of wealth to the State which have been more or less developed shall be brought into such prominence as their importance demands. To do this, it is desirable that samples exhibiting the entire thickness of each vein with the slate, shale or rock with which nature has capped them, and the clay or rock composing the floor on which they grew, should be arranged in their respective places in such a manner as to give those unfamiliar with mines and mining a literal exhibit of the variety and peculiarities of the coal measures of Ohio. From these reservoirs of wealth was mined during the year 1887 more than ten million tons, which places us as the second coal producing State in the Union. This great output is valued financially at nine million dollars.

Within very few years new and large fields of cannel coal have been developed in various portions of the State. Among the most notable are those at Cannelville, in Muskingum county, on a branch of the Columbus & Eastern Railroad, where it has been found varying from seven to eleven feet in thickness, capping a vein of bituminous coal from eighteen inches to four feet in thickness. This coal was mined extensively during the winter of 1867-68 for gas purposes.

A company of European capitalists have recently opened a field of cannel coal near Warsaw, Cohocton county, and so highly are they pleased with it that they have made consignments of it to Geneva, Italy, Amsterdam Germany, Holland, London, and Liverpool, and are now awaiting the result of practical tests that are being made. Analyses that were made prior to these shipments showed it to be a coal of great value. As this is the first instance of Ohio coal being shipped abroad, the result is

being watched with great interest, and it is to be hoped that an exhibit of the coal will be made on the coming occasion.

The iron ores of the State are of great economic value and should be brought forward in a manner in keeping with their importance. From the report of the Chief Inspector of Mines for the year 1887, I learn the tonnage to be about three hundred and seventy-eight thousand tons, consisting of two varieties, viz: The Black Band ore, which is mined in Mahoning, Trumbull and Tuscarawas counties, yielding eighty-eight thousand tons. Whether this amount was after it was calcined (a process to which it is subjected before being marketed) or not, the report does not show, but it is presumed that it was. Hematite is mined in Columbiana, Gallia, Hocking, Jackson, Lawrence, Perry, Scioto, and Vinton counties, yielding two hundred and ninety thousand tons. It is desired that samples of all the ores mined in these counties should be brought forward and placed on exhibition, both in their raw state and after they have been roasted and are ready for market.

Fire-clay is mined in eleven counties in this State, all but one of which (Scioto) are coal producing. Statistics show that last year three hundred and sixty-six thousand tons were mined for various purposes, and to enumerate them the length of this paper will not permit.

One important county, viz., Summit, is omitted, as the manufacture of sewer pipe is carried on at Akron, and in that vicinity fire-clay is not found, but, instead, a series of stratas of shale of considerable thickness, a complete mixture of which is necessary to make the required consistency which has given their product so extensive a market. If the fire-clays and numerous products manufactured from it can be secured it will certainly make a most interesting subject, and one of far greater magnitude than many of us are aware.

The limestone quarries of the State are distributed over forty-three counties, eleven of which are coal producing. This is quarried for many purposes, and is really one of our greatest industries. Statistics show that, for all purposes, there was mined during the year 1887 two million one hundred and eighty-four thousand four hundred and fifty two tons. Of this, six hundred and nineteen thousand and twenty-seven tons was burned for lime; four hundred and seventy-eight thousand six hundred and seventy-four tons were used for fluxing purposes; forty thousand eight hundred and sixty-six tons for dimension stone; four hundred and forty-six thousand nine hundred and seventeen tons for building stone; ninety-one thousand five hundred tons for rip rapping and protection purposes; seven thousand five hundred and forty-five tons for flagging; twelve thousand four hundred and thirty-five tons for paving; four thousand four hundred and eighty-eight tons for curbing, and four hundred and eighty-three thousand tons for ballast and macadam roads. From the above it will be readily seen that none of our

sister States can excel, if any can rival, us for quantity, variety, and adaptability of limestone for all purposes.

The sandstone quarries of our State are very large and widespread, are of great variety, and some of very rare quality. While it is universally known that the production is enormous, as there has never, to my knowledge, been any statistical report of them published, no reliable estimate of the quantity that is annually marketed can be made, and it is to be hoped that those interested in this great industry will make as full and complete an exhibit as the space allotted for that purpose will permit.

How to make an exhibit of our mineral resources is a matter which has been the subject of considerable discussion by the managers of the exhibit and others; to so arrange the various minerals, and to place them in such a manner that their most valuable qualities will be brought into the greatest prominence, is a matter which should interest every citizen of Ohio.

It has been suggested that each variety of mineral from the various portions of the State be placed together in such a manner that all the coal, iron ores, limestones, building stones, fire clays and other clays may be in close proximity, in order that a better comparison may be made.

The managers of the Centennial have been planning to place the manufactured product, especially the finer articles and those that would be damaged by exposure, in a large building already erected for that purpose, in such a manner that an avenue would be left in the form of an ellipse within the building, and all the articles arranged on each side sufficiently near to afford an opportunity for making a careful examination of the exhibit, while on the outside of this building, arrange in a circular manner the coarser articles. The raw materials and minerals in groups or pyramids, as the taste of those in charge may suggest, and make each group or collection embrace the products from each county, thereby giving to each county, that has taken the pains and gone to the expense of making an exhibit, the advantage of showing their resources to the best possible advantage. In order to secure a good display, some counties have induced the last Legislature to pass an act enabling them to expend large sums of money for this purpose. This is particularly true of Muskingum and Hocking counties, as they either have, or contemplate erecting separate buildings for their products, which will be located within the perimeter of this mineral display.

The last plan seems to give the most universal satisfaction to those intending to make a display, and that the matter may be fully discussed by those who should take the most interest in the matter, I present the subject in a rough way for your consideration at this meeting.

I deem it but fitting that the members of the O. I. M. E. take an active interest in making a success of this—Ohio's Centennial Exhibition.

DISCUSSION OF MR. HASELTINE'S PAPER.

The discussion of Ohio's Mineral Display at the Ohio Centennial was an earnest and interesting one. The members were anxious that Ohio's mineral wealth should be advantageously represented, and were willing to devote time and means to that end.

It was proposed to show, not only samples of minerals, but also the manner of working. Having in operation Lechner mining machines, Harrison machines, compressed air drills, coal-hauling machinery, coal tipples, and also an entire Electrical Mining Plant, in which mining machines, drills, and blasting would be operated by electricity, as well as coal being hauled by electric motors on the cars, and the method of lighting the mines be shown.

A very extensive exhibit of coals from many different mines, fire-clays and products from all parts of the State, building and paving stones, ores and blast-furnace products was contemplated. It was fully demonstrated that we had not been asked to assist or in any way to participate in such a display, but the Institute took such a decided interest in the matter as to appoint President Jennings and Mine Inspector Haseltine a committee to confer with Gen. S. H. Hurst, Director General, in regard to the exhibit, and were authorized to call upon all members of the Institute for such assistance as they desired, should they receive any encouragement.

[EDITOR'S NOTE.—The matter of making a display of mineral and metallurgical resources of the State was taken up early in April last by R. M. Haseltine, Chief Inspector of Mines. Mr. Haseltine's paper, read at the Logan meeting, brought it clearly before the Institute, which counts among its members many connected with the mineral and metallurgical interests of the State and those who are in positions to make the display a successful one.

Much interest was taken by the members, and a committee was appointed, as is stated in the minutes, to confer with Gen. Hurst. They called upon him, but, as can be learned from their report, they were virtually discouraged from making any further effort.

Some three or four days after the opening of the Centennial, when the failure of this display was manifest, Hon. B. F. Perry, the Commissioner of Mining and Metallurgy, appointed Prof. F. W. Sperr as superintendent to work up, even at this late hour, something to show that Ohio had some mineral resources.

As an officer of the Centennial, having no knowledge of the work previously done by our members, Prof. Sperr came to the Institute for aid, who, notwithstanding the rebuffs that had been received, entered heartily into the matter, and gave him the assistance asked.]

REPORT OF THE COMMITTEE.

To the Members of the Ohio Institute of Mining Engineers:

GENTLEMEN:—In accordance with your resolution, passed at Logan on July 12th, to tender to Gen. S. H. Hurst, Director General, your services to insure the making of Ohio's mineral display at the Centennial held in this city an exhibition worthy of the State, which stands second in the production of coal in the nation, and whose various mineral resources are second to none, we beg leave to report that, on July 14th, one of your committee called on Gen. Hurst at his office and informed him of the action taken by you after the discussion of the paper read to you on that subject, which was prepared at his earnest request, and formally tendered your services, whereupon, he expressed great pleasure, and spoke of Hon. B. F. Perry's failure to secure choice mineral exhibits of gold and precious stones from Colorado, Arizona and other of the Western States, but by his own exertions had secured a promise of twenty car loads of iron and iron ore, coal, building and limestone, fire clays and the manufactured products from them, which he thought amply sufficient to convey to the world an accurate idea of the resources of our State. You were only thanked for your action in the matter. In short, your offer of assistance was rejected.

W. H. JENNINGS, }
R. M. HASELTINE, } Committee.

REPORT OF PROF. F. W. SPERR.

On the morning of September 6th, Hon. B. F. Perry, Ohio Centennial Commissioner of Mining and Metallurgy, requested me to take the position of superintendent in his department. He showed how completely he had thus far failed to make an exhibit, "owing to certain friction," as he said, and asked whether I would accept the position, and what my facilities were for making an exhibit. Both questions were answered by saying that I would go down to the city and see what could be done, I first calling on Mr. Haseltine, Chief Inspector of Mines, at his office. I told him the situation at the Centennial grounds, and the object I had in view.

After some discussion, Mr. Haseltine suggested that a meeting be called in his office that evening, of people interested in the matter, and determine what would be best to do in the premises. By means of the telephone, and by calling on persons out of its reach, within three hours time the following gentlemen appeared in the Inspector's office: Prof. N. W. Lord, of the Ohio State University; Mr. Emerson McMillen, President of the Columbus Board of Trade and General Manager of the Columbus Gas Light and Coke Co.; Mr. J. A. Jeffrey, President of the Jeffrey Manufacturing Co.; Mr. W. H. Jennings, Engineer of the C., H. V. &

T. R'y and President of the Ohio Institute of Mining Engineers; Mr. Harry Taylor, City Manager of the Sunday Creek Coal Co.; Hon. R. M. Haseltine, Chief Inspector of Mines; Mr. J. C. Guthrie, Secretary of the Ohio Coal Operators' Association, together with the writer. Besides the above, the following gentlemen were notified of the meeting, but, being unable to attend, offered their services: Mr. Thos. E. Knauss, of P. Hayden & Son; Mr. Wm. Job, General Manager of the Ellsworth & Morris Coal Co.; Mr. Walter Crafts, Treasurer of C. & H. C. & I. Co.; Mr. S. F. Brooks, Secretary of the Ohio Coal Exchange, also of W. B. Brooks & Sons; and Hon. Thos. B. Bancroft, General Manager for W. P. Rend & Co.

The meeting was called to order by Mr. McMillen, and, upon motion, Mr. Haseltine was elected President and Mr. Sperr, Secretary. After discussing the advisability of attempting to make an exhibit at this late day, it was thought by all present that a creditable display might yet be made, and it was resolved to make the attempt for the credit of the mineral resources of the State of Ohio.

In view of the thus far complete failure of the exhibit (the end of the third day of the Centennial), and the fact that the G. A. R. annual reunion would occur during the following week, it was determined to fill the void, so far as possible, by immediately taking such mining machinery, coal, iron, building stone, ores, etc., as could be found in, and in the immediate vicinity of, the city of Columbus, and that the exhibit be made full and complete, as rapidly as possible, with representative specimens from the mines, quarries, furnaces, potteries, oil refineries, mills and various manufactories of mineral products, together with the mining machinery used in the State, set up and operated by an electrical plant, showing the applicability of electricity to mining operations.

The next morning arrangements were made with Mr. Perry with the view of carrying out the above plans. He assured me that from this date he had no higher authority to consult in relation to his department, and that such arrangements as he might make would stand. Whereupon Mr. J. C. Guthrie sent the following circular to 175 of the principal coal operators of Ohio, and a copy of which appeared in a number of the county papers:

THE OHIO COAL OPERATORS' ASSOCIATION, }
COLUMBUS, O., September 7, 1888. }

GENTLEMEN: The Ohio Centennial has as yet almost no representation of coal, one of the principal industries of the State.

An endeavor is now being made to secure an exhibit of coal, mine machinery, etc., that will be creditable and partially fill this void. To do this, I appeal to your own interest, and your pride in that of the State, to act promptly and liberally in sending

as soon as possible, specimens of coal, fire-clay, iron ore, coke (from Ohio coal), coal fossils, tools or other things of interest connected with the trade.

If possible, please send a section, 12 inches or less square, showing the full thickness of the vein you work. Enclose in each box, or so attached as to be safe, a shipping card, and, if possible, send with each specimen the analysis of your coal, a card giving, in bold type, your firm name, name of mine, post-office address, thickness of vein, and any other information which can be condensed into the limited space on the card. Prepay freight and consign to F. W. Sperr, Superintendent Mineral Exhibit, Centennial, Columbus, Ohio. Ship to Columbus and notify Mr. Sperr, care of Inspector of Mines, State House, Columbus, Ohio, of your shipment, and whether you desire any of it returned. He will see that your specimens are taken to the grounds promptly. This call is late, but by your prompt favorable response, the necessity of which it is hoped you will see, a creditable display can be made.

Yours truly,

J. C. GUTHRIE, *Secretary*.

A copy of the following circular was sent to each of the General Freight Agents of the different lines of railroad entering Columbus:

THE OHIO COAL OPERATORS' ASSOCIATION, }
COLUMBUS, OHIO. }

DEAR SIR: I desire to call your attention to the fact that the mineral exhibit at the Centennial Exposition is almost nothing. The fact that coal is one of the chief industries of the State, and one of the largest factors in railroad revenue, you appreciate. At this late hour an endeavor is being made to secure a creditable display, and I have requested specimens of the coal, tools, iron ore, etc., from the Ohio operators. The shipments will be consigned to F. W. Sperr, Superintendent of Mineral Exhibit, Columbus, Ohio, who will see that they are transferred to the Fair Grounds, and I ask your co-operation in giving them quick transit.

Will you please see that instructions are given that articles consigned to him shall be brought to the city without delay.

Yours very truly,

J. C. GUTHRIE, *Secretary*.

The use of the office and the services of the clerk of the Inspector of Mines were tendered me to facilitate the work of making the exhibit successful. With this aid about twenty-five letters had been sent to different manufacturers, and more were being prepared, when, on Saturday afternoon, Mr. Perry informed me that the "management" might interfere with our bringing in exhibits which might arrive late.

This was contrary to the assurances I had previously received, and on which all letters were sent out guaranteeing that all exhibits sent in would be promptly taken in charge and placed on exhibition. I was also informed that a commissioners' meeting had been

held Friday evening, September 7th, at which the question was discussed, and that it was the spirit of the meeting not to allow Mr. Perry to go on with the arrangements he had made with me. Under the circumstances there was nothing left me to do but to resign my position under Mr. Perry, to inform those who were at work with me here in Columbus of what had taken place, and to have all letters recalled, Mr. Guthrie recalling those which had been sent out by himself.

Mr. Taylor, of the Sunday Creek Coal Company, had already placed upon the grounds a monument of lump and cannel coal from the company's mines, as had also the Columbus and Hocking Coal and Iron Company. The Fish Press Brick Company were preparing to exhibit a section of the shales which they quarry and grind up for their brick material, together with a comparative exhibit of hand and machine-made brick.

The Fish Manufacturing Company were preparing an extensive exhibit of building stones, representing nearly all the important quarries of the State. Messrs. King, Gilbert & Warner were preparing an exhibit of pig iron manufactured by them, together with specimens of ores and fuels used. The Jeffrey Manufacturing Company were setting up coal-cutting machines and drills, to be taken to the grounds at once.

On Monday, September 10th, there would have been taken to the grounds as much of the collection of the Ohio Geological Survey and of the Ohio State University mineral collection as the building for the Centennial mineral exhibit could have contained. Various small exhibits from the city were equally well in hand.

Throughout the State an interest had been awakened and a lively activity inaugurated to get out and forward specimens, all of which came to naught by the turn of affairs.

Some of the people of the city took their exhibits to the grounds, notwithstanding the fact that the attraction would not be what was expected when they were first interested in the matter.

J. W. SPERR,

Asst. Professor, Mining Dep't, Ohio State University.